

1-10 (*cancelled*)

11 (*currently amended*): An apparatus for bottom seeding crystal growth comprising,

- a) a vessel for holding seed crystal therein with precursor charge or melt thereon,
- b) means for installing said seed crystal and said charge in said vessel,
- c) a small inner elongated electrode mounted within said vessel at or near the vertical axis thereof, which electrode extends into said charge or melt but does not contact said crystal,
- d) an outer electrode which extends at least partially around said inner electrode, and proximate the inner walls of said vessel,
- e) heater means to heat said charge to a molten state to form a melt,
- f) means for applying a voltage across said electrodes to generate a radial electric current in said melt,
- g) an induction coil mounted around the vessel and
- h) means for applying voltage to said coil to impose a magnetic field lines in said melt such that the flow of said radial electric current crosses said magnetic field lines and to impart a stirring force to said melt for greater uniformity in melt and crystal.

Formatted: Bullets and Numbering

12 (*previously presented*): The apparatus of claim 11 wherein said vessel walls serve as said outer electrode.

13 (*previously presented*): The apparatus of claim 11 wherein said coil serves as said heater means and said induction coil.

14 (*previously presented*): The apparatus of claim 11 wherein said small electrode is mounted in a heater housing, which housing is sized to leave one or more annular spaces between it and the inner walls of said outer electrode, said housing having an inside heater near the inside bottom surface of said housing, means for lowering said housing so it sits on said charge in a lower portion of said vessel, means to activate said inside heater to heat said charge to a lower melt, a reservoir mounted in the upper portion of the vessel for holding an upper charge to supply an upper melt which can flow down through said annular spaces and around said heater housing to contact said lower melt and thus submerge a portion of said housing in said melt, means to heat said upper charge to said

upper melt and means for applying voltage to said electrodes and said induction coil to impart a stirring force to said lower melt for greater uniformity in melt and crystal.

15 (*previously presented*): The apparatus of claim 14 having means to ramp down the heat applied to said lower melt and means to slowly raise said inner heater and heater housing in advance of crystal growth below, in the bestirred lower melt, to provide a more uniform radial composition both in said melt and crystal while replenishing said lower melt from said upper melt through said annular spaces.

16-19 (*cancelled*)

20 (*new*): A semi-conductor crystal comprising, GaSb.